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ABSTRACT

This paper describes the history of the use of distance learning systems by New York State schools, Boards of Cooperative Educational Services (BOCES), and postsecondary institutions since 1985. Several projects are briefly described which use a variety of telecommunications media, such as cable television, microwave, audiographic teleconferencing, computer conferencing, and satellite technology. In addition, the implications of distance learning for the postsecondary, vocational rehabilitation, and continuing education sectors are illustrated by project descriptions. Four current statewide telecommunications initiatives involving collaboration among state agencies are briefly described. Finally, several information dissemination activities undertaken by the Center for Learning Technologies to ensure that educators keep informed of current and future distance learning planning activities and applications are described. (Author/EW)

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Telecommunications and Distance Learning Systems in New York State

by
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The telecommunications media comprise a significant capacity for expanding lifelong learning opportunities at school, at home, and at the workplace. The New York State Education Department's Center for Learning Technologies is exploring the implications of several emerging networks for delivering a variety of educational and cultural programs and services. This paper briefly reviews the current status of New York State Distance Learning projects and selected statewide collaborative telecommunications initiatives.

New York State Distance Learning Projects

Since 1985, 64 distance learning projects have been initiated throughout the State. Many of the projects were initially designed to provide enhanced courses to rural schools with limited resources. Twelve projects are currently operating, using some form of communications media, to link a teacher and students in one school to students in other schools situated several miles away. The networks, which typically provide two-way audio and data communications and one-way video transmission, are offering courses, such as calculus, astronomy, and second language instruction. The remaining planning projects are exploring the potential applications of satellite, fiber optic, cable, and new broadcast technologies.

During the past year, several distance learning projects have begun to explore other applications in addition to the provision of courses. Examples include:

- The use of telecommunications to offer literacy education, retraining of displaced workers, and traditional adult continuing education at easily accessible locations.
- The provision of expanded staff development opportunities through interactive communications systems.
- The use of distance learning networks to increase the participation of nontraditional students in postsecondary education.

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- The provision of enhanced access to educational, cultural, economic, government, research, and information services through computer-based networks.

- The application of new telecommunications technologies to expand library and research information services networks.

The 64 projects involve the collaborative efforts of more than one-half of the State's public school districts. Boards of Cooperative Educational Services(BOCES), postsecondary institutions, and cultural agencies have also participated in the projects.

The are several projects that illustrate the technologies, applications, and programs that have been addressed by distance learning.

Cable Television

The Pleasantville and Ossining Union Free School Districts, located in downstate New York in Westchester County, are using cable television to offer students Latin language courses. Within each school, a classroom is equipped with cameras, monitors, and microphones. Both schools are connected through an existing cable television network consigned by a local franchise. The network provides two-way audio and video transmission.

Microwave

The St. Lawrence-Lewis BOCES, and three schools located in northern upstate New York, have installed a learning network to deliver advanced placement courses. At each site there is a tower, microwave transmission equipment, and a studio classroom equipped with cameras, monitors, and microphones. Each site is capable of audio and video transmission and reception. The courses delivered over the system are Health, Shorthand, Psychology, Sociology, Latin, Advanced Placement English, and Business Law. A study is underway to determine the feasibility of incorporating an additional 15 schools within the network.

A second project that uses microwave technologies was begun in 1986 by the Steuben-Allegany BOCES and several schools in the southern tier region to improve high school literacy, decrease drop-out rates, and enhance instructional opportunities. The network uses existing microwave

facilities for the transmission of audio and video to remote sites. The transmission of voice and data from the remote sites to the originating site is accomplished through a UHF radio frequency link.

Audiographic Conferencing

The Delaware-Chanango BOCES, in central New York, is using audiographic conferencing to deliver instruction to students in the schools throughout their region. A teacher and students at one location are connected by an AT&T Alliance teleconferencing bridge and a telephone line to students at remote locations. The teacher and students are able to converse with each other using speaker phones. Incorporated within the system at each site are a personal computer, graphics tablet and modem. The teacher and students can create graphic images using the tablet or enter information into the computer using the keyboard. The images and messages are transmitted and received amongst the sites throughout the lesson. Also, the teacher can prepare images and text prior to the lesson, store the information on software, and transmit when appropriate. Five schools within the Delaware-Chenango BOCES region have received Advanced Placement courses in Astronomy and Calculus through this audiographic conferencing network.

Computer Conferencing

The Islip Union Free School District 2 and the New York Institute of Technology, located in the Long Island region, are developing a computer conferencing system that offers high school students courses that are not available within their schools. The network links personal computers at remote sites to the New York Institute of Technology host computer facility through normal direct dial telephone connections or by connecting to GTE Telenet. Computers serve as the sole means of communication and join individual students in one location to students in another. Students converse with each other and the teacher by electronically transmitting messages entered in the course conference.

Satellite

The Greece Central School District and the Wheatland-Chili Central School District in Western New York recently completed a one year feasibility study of the instructional programs and staff development services of the Texas-Interactive Instructional Network(TI-IN), a satellite-based learning system. The study assessed the capacity of the system for providing adult education,

training for local business and industry, PSAT/SAT test preparation, and instruction. TI-IN, a private company, originates televised courses from its studio located in San Antonio, Texas. The lessons are transmitted over the GTE SPACENET II domestic satellite to schools throughout the nation. Each reception site is equipped with a dish for receiving the programs, a television monitor for seeing and hearing the teacher, and handheld telephones for "talk back."

There are other projects that illustrate telecommunications applications for postsecondary institutions, persons with disabilities, and continuing education.

Postsecondary

Houghton College, situated in Western New York, linked two campuses, separated by sixty miles, via a microwave broadcast system to offer courses simultaneously at both sites and to reduce staff travel time between the campuses. At each campus, classrooms are equipped with television cameras, microphones, television monitors and projection screens linked through an interactive television channel, 6 long distance phone/voice lines, and 4 intercom lines.

Vocational Rehabilitation

The Resource Center for Independent Living in central New York is studying the feasibility of using telecommunications to enhance access of the disabled to their programs. A potential application of telecommunications is to enable visually impaired and geographically separated elementary school students to collaborate on the production and distribution of tactile art collections.

Continuing Education

The Albany City School District and the Greece Central School District are working with their local public television stations, WMHT and WXXI, to develop a video-based distance learning system for home study pursuit of a high school equivalency diploma. Video programs for teaching reading, mathematics, science and social studies skills are broadcast by the stations to adult learners. A computer conferencing network offers adults auxiliary instruction and tutoring.

Statewide Collaborative Telecommunications Initiatives

The Center for Learning Technologies is pursuing several collaborative telecommunications initiatives at the State level since cooperation amongst agencies is necessary to aggregate current and planned resources in support of comprehensive distance learning. Examples include:

The New York Network, a program of the State University of New York, is investigating potential uses of their emerging satellite capacity for providing distance learning for the State's public schools, correctional facilities, adult learning programs, occupational and vocational education, and workplace training. The New York Network will install a KU satellite "uplink" capacity. Two channels will initially be available for the transmission of video, voice, and data to remote reception sites throughout the Northeastern United States. The Center is working with the Network on a pilot demonstration project to create a New York Learning Network employing the satellite capacity for serving the lifelong training and education needs of the citizens of the State.

The New York State Commission on Cable Television is exploring potential applications of cable television for distance learning. The Commissioner of the New York State Education Department has supported the Commission's proposal to amend its rules related to increasing the capacity of channels available for locally originated educational and public service programming. The Center for Learning Technologies and the Cable Commission are assessing the feasibility of expanding local cable access for educational purposes.

The Center for Learning Technologies is collaborating with the Long Island Boards of Cooperative Educational Services (BOCES) to capitalize upon the plan of the Metropolitan Transit Authority (MTA) to install a fiber optic network that might serve schools, libraries, and other institutions of Long Island, Westchester County, and New York City. The Commissioner of the New York State Education Department has requested MTA to allocate cable capacity for the development of a Long Island Telecommunications Educational System. Representatives of the Center, the BOCES, Long Island's two regional library networks, and MTA representatives are developing a network design.

The Center for Learning Technologies, the Massachusetts State Department of Education, the Massachusetts Corporation for Educational Telecommunications, and SUNY College of Technology at Utica, New York are jointly planning a conference for April 1988, entitled "Distance Learning in the Northeast: Access and Equity in the Information Age." The conference will highlight projects that might be implemented across the states. The Northeastern State Educational Agencies will cooperatively develop a "resource book" to provide information on operating projects and sources of technical assistance in the Northeast.

Information Dissemination Activities

Several initiatives were undertaken for providing information to educators, Department staff, other State Agencies, and industry on extant and emerging telecommunications for education and training.

- A computer data base of profiles of the 64 New York State Distance Learning Projects was developed for dissemination to the field.

- In February 1986, a Telecommunications Teleconference was broadcast over the public television system. The Center for Learning Technologies is now producing an updated video program that profiles innovative applications of satellite and fiber optic distance learning projects throughout the State.

- A publication, entitled Video Vision, was recently developed to provide New York State schools with information on the instructional applications of video programming, the use of video production as a "tool," and distance learning systems.

- A conference, "Distance Learning Systems: New Windows for Lifelong Learning" was cosponsored with SUNY College of Technology in Utica, New York in April, 1987. Three regional distance learning roundtable workshops will be conducted in the Buffalo, Albany, and Long Island regions of the State this year.

Conclusion

New telecommunications technologies and distance learning systems are rapidly transforming the traditional educational delivery system of New York State, the nation and the world. The provision of remote instruction across local educational jurisdictions and state borders through satellite communications, direct broadcast television, supercomputer networks, and fiber optic systems transcends narrow institutional, programmatic, and geo-political boundaries and forges new collaborative relationships amongst institutions. Several policy and legislative issues have arisen as a result of this transformation process since many of the current laws, policies, funding mechanisms, and regulations do not encourage or support the emergence of a new educational delivery system. The New York State Education Department's Center for Learning Technologies has begun a review of these issues in an effort to develop legislation and fiscal support for collaborative development of telecommunications applications for lifelong learning opportunities.